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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,356	03/18/2005	Francis Marsais	0600-1038	5020
<small>465</small> YOUNG & THOMPSON 209 Madison Street Suite 500 ALEXANDRIA, VA 22314			<small>7590</small> EXAMINER VALENROD, YEVGENY	
			ART UNIT 1621	PAPER NUMBER
			MAIL DATE 08/10/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/528,356

Applicant(s)

MARSAIS ET AL.

Examiner

YEVEGENY VALENROD

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-31, 33 and 34 is/are pending in the application.
- 4a) Of the above claim(s) 14-21, 27, 33 and 34 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24 and 25 is/are allowed.
- 6) ☒ Claim(s) 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Newly submitted claims 33 and 34 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The new claims are directed to a product which is a hydraulic binder, adhesive, founding, paint leather, food, pharmaceutical or cosmetic which are classified in various classes/subclasses that are different from the carboxylic acid composition of the elected invention

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 33 and 34 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Amendment to the claims filed 4/10/09 is acknowledged.

Rejection of claims 22-25 under 35 USC 112 2nd paragraph is withdrawn in view of applicants' amendment.

Rejection of claim 22 under 35 USC 102(b) over Tisza et al. is withdrawn in view of applicants' amendment.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 23 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. According to the specification applicant has only prepared compositions comprising 2-carboxy-2,3,4-trihydroxypentanedioic acid. There is no evidence that at the time of filing applicants were in position of compositions comprising any other tricarboxylic acid produced by the electrochemical oxidation.

Claim 23 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for production of a carboxylic acid composition comprising dicarboxylic acid and tricarboxylic acid wherein the tricarboxylic acid is 2-carboxy-2,3,4-trihydroxypentanedioic acid or a salt thereof, does not reasonably provide enablement for production of any other tricarboxylic acid using the electrochemical oxidation method. The specification does not enable

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any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with claim 23.

There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is "undue." These factors include, but are not limited to: (a) the nature of the invention; (b) the breadth of the claims; (c) the state of the prior art; (d) the amount of direction provided by the inventor; (e) the existence of working examples; (f) the relative skill of those in the art; (g) whether the quantity of experimentation needed to make or use the invention based on the content of the disclosure is "undue"; and (h) the level of predictability in the art (MPEP 2164.01 (a)).

Nature of the invention and Breadth of the claims:

The claims are directed to a polycarboxylic acid composition produced by electrochemical oxidation of a monosaccharide composition where in the said treatment is carried out under a specified set of conditions. Claims are not limited to a particular monosaccharide and therefore cover production of a tricarboxylic acid from any monosaccharide.

State of the prior art and level of predictability in the art:

The relevant art fails to teach production of tricarboxylic acids from monosaccharides via electrochemical oxidation. Applicants' specific reaction conditions are what applicant believes to be responsible for the surprising result of the instant invention.

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Art recognizes that primary alcohols can be oxidized using electrochemical means. For example EP 1027931 provides an example where methyl- α -D-glucopyranoside is oxidized to produce methyl- α -D-glucopyranosiduronic acid with 100% conversion column 12, Example 5). However, the reaction conditions utilized in EP 1027931 are not included in the scope of the instantly claimed conditions.

Amount of direction provided by the inventor and existence of working examples:

Examples of the instantly claimed compositions are provided on pages 15-23 of the specification. Examples show that various stereo isomers of 2-carboxy-2,3,4-trihydroxypentanedioic acid can be produced from monosaccharides with corresponding stereochemistry (table on page 23). Examples also show the criticality of the instantly claimed reaction conditions in production of 2-carboxy-2,3,4-trihydroxypentanedioic acid. Where the nature of the anode was changed the tricarboxylic acid was not produced (page 18 lines 21-30).

Relative skill of those in the art and quantity of experimentation needed to make or use the invention:

Although one skilled in the art would not find it burdensome to reproduce applicants' experiments, there is no indication that any tricarboxylic acid/dicarboxylic acid composition can be prepared using this methodology. Applicants only provided examples where 2-carboxy-2,3,4-trihydroxypentanedioic acid is produced. There is no indication that other tricarboxylic acids can be produced or which monosaccharides can be used to produce them. The

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experimentation required to make such a determination is burdensome because it requires performing numerous reactions, isolating the produced products and characterizing them. Furthermore according to the table on page 23 of the specification some monosaccharides produce mixtures of isomers and some produce a single isomer. It is also not possible to predict the specific concentration of carboxylic acids produced as these parameters can only be determined experimentally.

Thus, given these considerations, one of ordinary skill in the art clearly would not be able to practice the claimed invention and prepare the composition commensurate in scope of claim 23 such that it can be used as contemplated in the specification without first engaging in substantial and undue experimentation. Therefore, the claims are rejected under 35 U.S.C. §112, first paragraph, as lacking and enabling disclosure.

Allowable Subject Matter

Claims 24 and 25 are allowed.

Conclusion

Claims 14-31, 23-25, 27, 33 and 34 are pending

Claims 14-21, 27, 33 and 34 are withdrawn

Claim 23 is rejected

Claims 24-25 are allowed

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yevgeny Valenrod whose telephone number is 571-272-9049. The examiner can normally be reached on 8:30am-5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Sullivan can be reached on 571-272-0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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